Abstract

The surface treatment for printing applications using water-based ink of the present invention comprises a surface pretreatment of the recording media prior to the deposition of the ink on the surface, wherein the pretreatment liquid is an aqueous and/or alcoholic solution or emulsion containing a polyvalent metal salt, and at least one of an organic swelling reagent and a coalescence reagent. The pretreatment liquid is applied with a rubbing motion in a thin layer of approximately 4μm to the entire upper surface of the recording media. The swelling reagent and/or the coalescence reagent cause the upper 3-5μm to swell and the polyvalent metal cations become embedded in the surface. After partial drying of the pretreated media, ink composition is deposited onto the surface to form an image. The ink solids precipitate in response to the embedded cations deposited in the pretreatment, and form interactions above and below the surface of the media to give a mechanically stable ink dot. After drying at temperatures high enough to evaporate the swelling reagent and/or the coalescence reagent, the ink dot remains embedded in the surface of the media.